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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/666,084 | 09/19/2003 | Janardhanan Radhakrishnan | 010327-008110US | 8982 |

20350 7590 09/21/2006

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| EXAMINER | |
|---|---|
| MCCARTHY, CHRISTOPHER S | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2113 | |

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/666,084 | RADHAKRISHNAN ET AL. | |
| | Examiner | Art Unit | |
| | Christopher S. McCarthy | 2113 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *19 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *9/19/03* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 8, 10, 19, and 21 recite the limitation "without the control processor" in claim language. There is insufficient antecedent basis for this limitation in the claim. There is no control processor in the parent claims of these dependent claims.

3. Claim 6 recites the limitation "if any partitions were removed" in the claim language. There is insufficient antecedent basis for this limitation in the claim. No removal language was cited in the parent claims of 5 or 1; there is removal language in claim 3 prior to claim 6, but claim 6 is not dependent thereupon.

### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-7, 9, 11-18, 20, 22-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Beshai et al. U.S. Patent 6,744,775.

As per claim 1, Beshai teaches a method for handling failures in a data plane of a plurality of data planes (Abstract, wherein, failures of nodes is taught, which is further taught in figure 2 as having a processor; this is consistent with the applicant's specification definition of a data plane as "any data processor", paragraph 0024 of the specification), the method comprising generating a partitioned data structure (column 5, line 66 – column 6, line 13, wherein, Beshai teaches the partitioning to be done according to rows and columns, which is consistent with the applicant's specification definition of partitioning as described in paragraph 0029), wherein the partitioned data structure includes one or more partitions for each of the plurality of data planes, each partition including routes for a source data plane to a destination data plane (column 5, line 65 – column 6, line 13; figure 5, wherein, each intersection of a row and column includes routes of that node pair); sending one or more partitions from the partitioned data structure to a data plane that is the source data plane in the routes (column 6, lines 59-62); detecting a failure in a failed data plane in the plurality of data planes (column 6, lines 63-67, wherein, a link state change can include a failure, and Beshai further teaches that a link state change can be due to a node failure in column 2, lines 11-12); and notifying data planes other than the failed data plane in the plurality of data planes that the failed data plane has failed (column 7, lines 8-11, wherein all affected nodes are notified), wherein the notified data planes do not send data for the one or more routes found in a partition associated with the failed data plane (column 13, lines 29-50, wherein, if only one route is included for data transport to the failed node (as taught in column 6, lines 11-13) then data is not sent to the failed node.).

As per claim 2, Beshai teaches the method of claim 1, wherein one partition includes all routes from a source data plane and to a destination data plane (figure 5; column 5, line 66 – column 6, line 13).

As per claim 3, Beshai teaches the method of claim 1, further comprising removing any data partitions that have been received at the data planes that have the failed data plane as the destination data plane (column 13, lines 42-50, wherein routes are tagged/marked as failure routes and will not be used until they are restored; this is consistent with the applicant's specification in paragraph 0040, in that, clearing/removing does not explicitly mean deleting the entries, but can also mean being marked inactive, or, removed from the active state, which is what is implicitly taught by Beshai).

As per claim 4, Beshai teaches the method of claim 1, further comprising: detecting when the failure has been restarted (column 13, lines 46-50, wherein the examiner interprets this language to mean the failure has been resolved and the processor restored, rather than strict interpretation of restarting the failure, and, therefore, still having the failure. The resolution definition used by the examiner is consistent with applicant's specification of paragraph 0042); and sending one or more partitions that include the failed data plane as the source data plane in the routes to the failed data plane (column 7, lines 8-11, wherein, partitions are synonymous with route/link information for the affected source node).

As per claim 5, Beshai teaches the method of claim 1, further comprising: detecting when the failure has been restarted (column 13, lines 46-50, wherein the examiner interprets this language to mean the failure has been resolved and the processor restored, rather than strict interpretation of restarting the failure, and, therefore, still having the failure. The resolution

definition used by the examiner is consistent with applicant's specification of paragraph 0042); and notifying the data planes other than the failed data plane that the failure has been restarted, wherein the data planes send data for the one or more routes found in a partition associated with the failed data plane (column 7, lines 8-11).

As per claim 6, Beshai teaches the method of claim 5, further comprising if any partitions were removed, restoring the removed partitions (column 13, lines 46-50).

As per claim 7, Beshai teaches the method of claim 6, further comprising sending the removed partitions to each data plane other than the failed data plane (column 7, lines 8-11, wherein, the route information (partition) is sent to the nodes to alter its routing sets, i.e. the restored/failed link information which includes previously 'removed' routes (partitions) are now restored; column 13, lines 42-50).

As per claim 9, Beshai teaches the method of claim 1, further comprising: storing the data structure in persistent storage (column 5, lines 8-13); and sending one or more partitions to the failed data plane from the persistent storage after the failed data plane is restarted (column 7, lines 8-11).

As per claim 11, Beshai teaches the method of claim 1, further comprising separating each partition in the partitioned data structure (figure 5).

As per claim 12, Beshai teaches a method for handling failures in a data plane in a plurality of data planes, the method comprising: generating a partitioned data structure, wherein the partitioned data structure includes one or more partitions for each of the plurality of data planes, each partition including routes for a source data plane to a destination data planes (column 5, line 66 – column 6, line 13; figure 5), sending one or more partitions from the

partitioned data structure to a data plane that is the source data plane in the routes (column 6, lines 59-62); detecting when a failure in a failed data plane in the plurality of data planes has been resolved (column 13, lines 46-50); and sending the failed data plane a partition associated with the failed data plane (column 7, lines 8-11), wherein the partition allows the failed data plane to resume sending data according to the routes found in the partition (column 13, lines 46-50).

As per claim 13, Beshai teaches the method of claim 12, further comprising notifying data planes other than the failed data plane that the failed data plane has failed, wherein the notified data planes do not send data for the one or more routes found in a partition associated with the failed data plane (column 7, lines 8-11, 29-31; column 13, lines 29-31, 38-50).

As per claim 14, Beshai teaches the method of claim 12, further comprising notifying data planes other than the failed data plane that the failure has been resolved, wherein the notified data planes resume sending data for the one or more routes found in a partition associated with the failed data plane (column 13, lines 46-50).

As per claim 15, Beshai teaches the method of claim 12, wherein one partition includes all routes from a source data plane and to a destination data plane (column 5, line 66 – column 6, line 6; figure 5).

As per claim 16, Beshai teaches the method of claim 12, further comprising removing any data partitions that have been received at the data planes that have the failed data plane as the destination data plane (column 13, lines 42-50).

As per claim 17, Beshai teaches the method of claim 16, further comprising if any partitions were removed, restoring the removed partitions (column 13, lines 42-50).

As per claim 18, Beshai teaches the method of claim 17, further comprising sending the removed partitions to each data plane other than the failed data plane (column 13, lines 42-50; column 7, lines 8-11).

As per claim 20, Beshai teaches the method of claim 12, further comprising: storing the data structure in persistent storage (column 5, lines 8-13); and sending one or more partitions to the failed data plane from the persistent storage after the failed data plane is restarted (column 7, lines 8-11).

As per claim 22, Beshai teaches the method of claim 12, further comprising separating each partition in the partitioned data structure (figure 5).

As per claim 23, Beshai teaches a method for generating and distributing a route data structure, the method comprising: receiving a plurality of routes for a plurality of data planes (column 6, lines 59-62); determining, for each route, a source data plane in which data is sent and a destination data plane in which data is received (column 5, line 66 – column 6, line 13); storing each route in a separate data partition depending on the source data plane and the destination data plane associated with the route (figure 5), wherein all routes for the same source and destination data plane are stored in the same data partition (figure 5); and distributing the each separate partition to a data plane, wherein partitions including routes for the source data plane are sent to that source data plane (column 6, lines 59-62).

As per claim 24, Beshai teaches the method of claim 23, further comprising: storing partitions in persistent storage (column 5, lines 8-13), wherein the stored partitions are sent to a data plane that had failed after the failure has been restarted (column 7, lines 8-11).

As per claim 25, Beshai teaches a system for handling data plane failures, the system comprising: a plurality of data planes; and a control processor (column 5, lines 4-13)comprising: a receiver configured to received routes for route data, each route specifying source data plane in which data is sent and a destination data plane in which data is received (column 5, lines 31-37); a data structure generator configured to generate a data structure that groups the routes by a source data plane for each of the plurality of data planes (column 5, line 66 – column 6, line 13); and a distributor configured to distribute the grouped routes to each associated source data plane (column 6, line 59-62), wherein the plurality of data planes comprise storage for storing the grouped routes that are received from the distributor (column 5, lines 8-13).

As per claim 26, Beshai teaches the system of claim 25, wherein the control processor comprises a failure detector configured to detect a failure in a data plane in the plurality of data planes (column 6, line 67 – column 7, line 11, wherein, the controller receives messages from the nodes and uses this information to determine/detect which nodes are affected by any failed links and notifies all the affected nodes that a failure has occurred).

As per claim 27, Beshai teaches the system of claim 26, wherein the control processor comprises a notifier, the notifier configured to notify data plane of the failure (column 6, line 67 – column 7, line 11).

As per claim 28, Beshai teaches the system of claim 27, wherein the data planes are configured to not send data to a failed data plane upon the notification (column 13, lines 29-31, 38-50).

As per claim 29, Beshai teaches the system of claim 27, wherein the data planes are configured to remove a partition associated with the failed data plane upon the notification (column 13, lines 42-50).

As per claim 30, Beshai teaches the system of claim 25, wherein the control processor comprises a detector configured to detect when a failure in a data plane has been restarted (column 13, lines 42-50).

As per claim 31, Beshai teaches the system of claim 30, wherein the control processor comprises a notifier configured to notify the data planes other than the failed data plane that the failure has been restarted (column 6, line 67 – column 7, line 11; column 13, lines 46-50).

As per claim 32, Beshai teaches the system of claim 31, wherein the data planes other than the failed data plane are configured to start sending data to the data plane whose failure had been restarted (column 13, lines 46-50).

As per claim 33, Beshai teaches the system of claim 31, wherein the data planes other than the failed data plane are configured to reinstate the partitions associated with the failed data plane whose failure has been restarted (column 13, lines 46-50).

As per claim 34, Beshai teaches the system of claim 31, wherein the distributor is configured to send the failed data plane whose failure has been restarted partitions that have the failed data plane as the source data plane (column 7, lines 8-11).

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: See attached PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher S. McCarthy whose telephone number is (571)272-3651. The examiner can normally be reached on M-F, 9 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571)272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christopher S. McCarthy
Examiner
Art Unit 2113